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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/633,850      | 08/04/2003  | Linda Hanley-Bowdoin | 5051-4581P          | 5547             |

20792 7590 08/07/2007  
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| EXAMINER |
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ZHENG, LI

|          |              |
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| ART UNIT | PAPER NUMBER |
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1638

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| MAIL DATE | DELIVERY MODE |
|-----------|---------------|

08/07/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/633,850 | <b>Applicant(s)</b><br>HANLEY-BOWDOIN ET AL. |  |
|                              | <b>Examiner</b><br>Li Zheng          | <b>Art Unit</b><br>1638                      |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 19-28 is/are pending in the application.
- 4a) Of the above claim(s) 19 and 22-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 May 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>5212007</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. Applicant's amendments to claim 20, submission of a new sequence listing and IDS, as well as amendments to drawing and the specification filed on 5/21/2007 are acknowledged.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. The objection to the specification is withdrawn in light of Applicants' amendments.
4. The rejection of claims 20 and 21 under 35 U.S.C. 102(b) is withdrawn due to claim amendment.

***Claim Rejections - 35 USC § 112***

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5. Claims 20 and 21 remain rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention, for the reasons of record stated in the Office action mailed December 19, 2006. Applicants traverse in the paper filed May 21, 2007. Applicants' arguments have been fully considered but were not found persuasive.

Applicants argue that the specification teaches that it is the combination of a transdominant mutation in the oligomerization domain with the Rb binding domain mutation that allows for the production of stable transgenic plant having increased resistance to geminivirus, and that the Declaration by Dr. Hanley-Bowdoin provides additional data showing that the recombination of mutations (an Rb binding mutation, L148, with a transdominant negative mutation) results in stable, heritable geminivirus resistance (response, paragraph bridging pages 7-8). However, the office contends that although the Declaration by Dr. Hanley-Bowdoin may provide enablement support for an AL1 mutant protein of TGMV comprising L148 (SEQ ID NO: 22), it does not enable an AL1 mutant protein of CbLCV comprising L145 (SEQ ID NO: 109).

Applicants further argue that the CbLCV L145 mutation is the functional equivalent of the TGMV L148 mutation as shown by both its location and by its Rb binding phenotype (response, page 8, 2<sup>nd</sup> paragraph). However, loss of binding activity to Rb of L145 mutation alone does not enable the invention. As clearly emphasized by Applicants, mutations such as L145 (SEQ ID NO: 109) and L148 alone would not result

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in reduced replication as is observed for the oligomerization mutants such as Ala 6-9 and Ala13-14 (response, page 7, 3<sup>rd</sup> paragraph). Therefore, it is essential to provide guidance on how to make mutations in AL1 of CbLCV, such a transdominant negative mutation, which can be used in combination of L145 to reduce the replication of CbLCV virus. Still further, Applicants heavily rely on sequence alignment to show that L145 and L148 are functional equivalents. However, there is little evidence to show that AL1 of CbLCV and AL1 of TGMV functions similarly so that the knowledge about AL1 of TGMV is transferable to that of CbLCV. On the contrary, the specification implies that AL1 of CbLCV may function differently from that of TGMV, as AL1 of CbLCV is toxic to various host cells whereas the AL1 of TGMV is not (specification, paragraph bridging pages 41-42).

Therefore, given the breadth of the claims; the lack of further guidance and additional working examples; the unpredictability in the art; and the state-of-the-art, undue experimentation would be required to practice the claimed invention, and therefore the invention is not enabled.

Finally, Applicants request rejoinder of claims 25-28, which are drawn to a method of use of the product of the elected invention group. However claims 20 and 21 have not been found allowable yet.

### ***Summary***

No claim is allowed.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

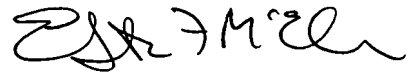
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li Zheng whose telephone number is 571-272-8031. The examiner can normally be reached on Monday through Friday 9:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on 571-272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**ELIZABETH MCELWAIN**  
**PRIMARY EXAMINER**